Trace Analysis of Cistern Water in the USVI

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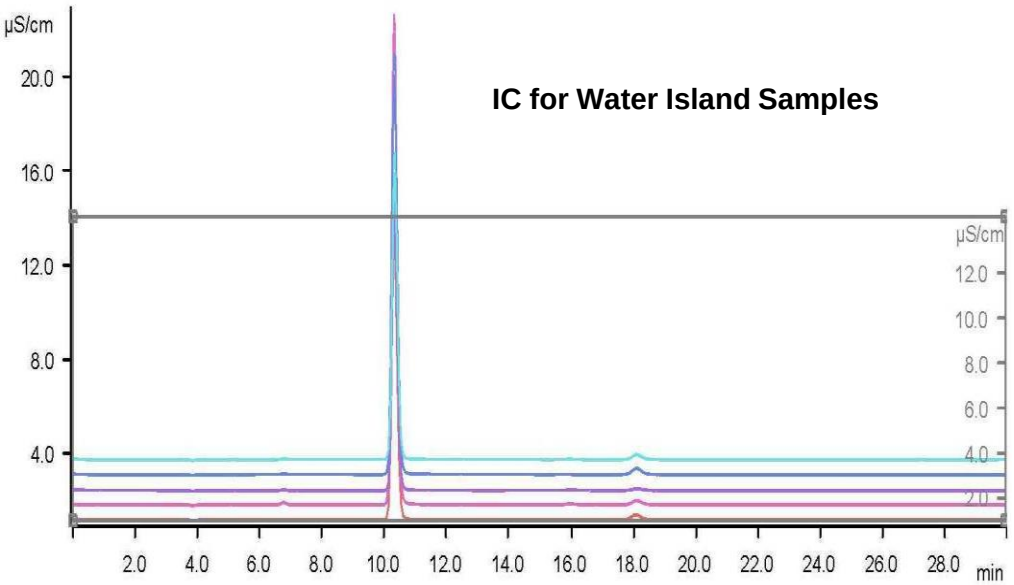
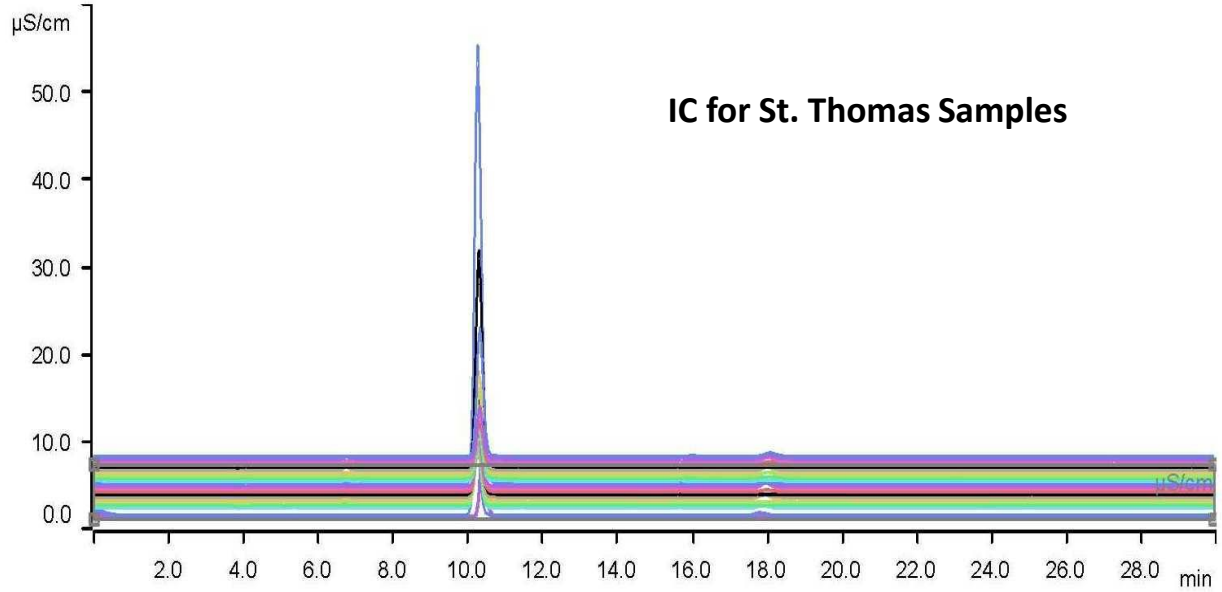
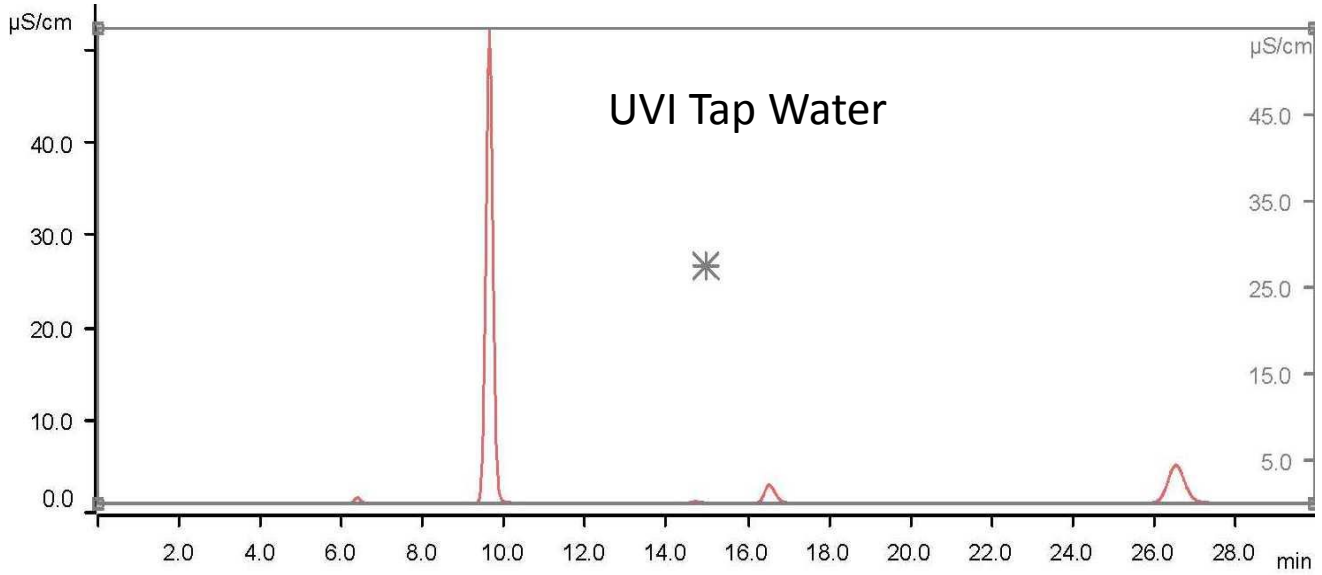
- **The quality of cistern water in the USVI is a major concern**
- **Water samples were collected from St. Thomas, St. John, and Water Island**
- **Anion analysis was accomplished using a Metrohm 850 IC**
- **Metal ion analysis was accomplished using a Varian ICPMS**
- **18.1 MΩ water (Barnstead Nanopure) was used for preparing standards and samples**
- **IC standards were purchased from Metrohm**
- **Ultima grade nitric acid in Teflon was purchased from Fisher Scientific**
- **All solutions were prepared using Nalgene plastic volumetric flasks**


IC for Water Island Samples
µS/cm
20.0
16.0
12.0
8.0
4.0
µS/cm
12.0
10.0
8.0
6.0
4.0
2.0
2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 min


IC for St. Thomas Samples
µS/cm
50.0
40.0
30.0
20.0
10.0
0.0
µS/cm
2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 min


µS/cm
UVI Tap Water
µS/cm
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 min

- **Water samples were digested (nitric acid and a Mars CEM microwave) to remove any organic material**
- **Samples were analyzed for Al, Sb, Cd, Cu, Ca, Cr, Co, Fe, Pb, Mg, Mn, Ni, K, Na, Tl, Sn, V, Zn, and U**
- **A separate analysis for As using the CRI (hydrogen gas) in order to account for any interfering species**
- **The cation analysis showed that the samples contained very small amounts (sub-ppb) of metal ions. A few metals that were found in higher amounts (still below 2000 ppb) were Al, Zn, and Cu.**

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UVI Students
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